

*facts*

**ABOUT  
FIREPROOFED  
WOOD**

**PROTEXOL CORPORATION**

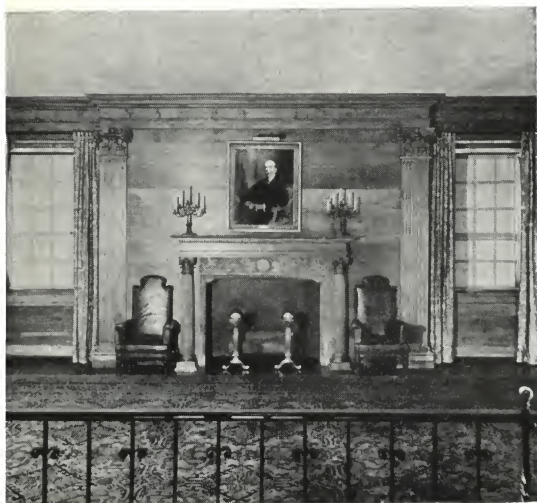




Assembly Chamber in the New York State Capitol, Albany. Fireproofed fir, spruce and pine were used in the coffers of the ceiling to provide support for the balcony. W. E. Haugaard, Commissioner of Architecture.



Fireproofed wood shingles used on the Scott Cottage of Col. H. H. Rogers residence at Southampton, L. I. Holland & White, Architects, New York City.



Fireproofed knotty pine used in the Directors Room of the New York Hospital, New York City. Coolidge, Shepley, Bulfinch & Abbott, Boston, Mass., Architects.

# Fireproofed Wood in

## PROTEXOL FIREPROOFING OFFERS ARCHITECT, DESIGNER AND

The requirements of structural materials for flexibility as well as acoustical and insulating qualities are best met by wood. The added feature of great strength for a light weight recommends wood for many structural uses. Fireproofed wood enhances these qualities and gives internal protection against spread of fire that is not dependent upon human control or mechanical devices. When fireproofed wood is built into a structure it insures permanent fire protection which has now been recognized by the highest authorities — the Underwriters Laboratories of Chicago, in their report R2282, have approved Protexol's product for label service as being permanently non-combustible; it has been approved also by the International Association of Fire Chiefs.

### FIREPROOFED WOOD IN HOTELS, APARTMENTS, OFFICE BUILDINGS, ETC.

The experience of New York City, which has required fireproofed wood for interior trim in its building code since 1899 following the Windsor Hotel fire, offers ample testimony to its offering internal fire protection. Protexol's Process is a development of the Bachert Process in commercial use since 1895.

### FIREPROOFED SCAFFOLDING

The fact that fire insurance companies offer a reduced rate of 20% for the use of Protexol's grademarked fireproofed scaffolding amply demonstrates its economic value. Its requirement by the New York World's Fair proves it to be a form of use and occupancy insurance.

### FIREPROOFED WOOD IN THE PLANT AND FACTORY

Exposed to acid fumes as in the roof of pickling or sulphur bleach rooms, fireproofed wood has merited as low a rate of fire insurance as the installation of sprinklers with every assurance of a longer life than from steel construction. Corroding fumes frequently make the use of wood roofs advisable, and fireproofing insures the necessary fire protection. In other cases of roof construction acoustical and heat insulating values make the use of wood roof planking advisable. Spark hazards are omnipresent in alcohol or light oil plants and fireproofed wood walks, stairs, etc., give assurance of protection. Structural uses for fireproofed wood are limitless.

Washington Irving High School, New York City. New wing in which fireproofed maple flooring and pine lining was used.





# • the Building Field

## • GREAT POSSIBILITIES TO THE • CONSTRUCTION ENGINEER

### FIREPROOFED WOOD AS AN ELECTRIC INSULATION

The fact that the three largest power companies use fireproofed wood for buss cell compartment doors amply attests its usefulness for that purpose. On the S. S. "Queen Mary" fireproofed wood conduits are used exclusively.

### FIREPROOFED WOOD DOORS

Bearing in mind that wood doors are hung with smaller clearances than metal doors will best indicate why they are better smoke barriers. Where a life hazard exists, fireproofed wood doors offer the greatest protection. This is as important for entrance doors in hotels or apartments as it is for basement entrances in dwellings where 25% of the fires start.

Fires have been stopped by doors of fireproofed wood in guest rooms of the Hotel Pennsylvania, The New Yorker, Ritz-Carlton, Commodore, St. Regis and the Dixie Hotel and also a number of apartment houses. Their value has been established by the test of actual fires.

On July 23, 1935, the world's highest fire occurred on the 48th and 49th floors of the General Electric Building in New York City. Details of this fire, in which hollow metal doors failed, appeared in the Hardwood Record of June, 1936. The New York Board of Fire Underwriters report in survey S.B. No. 377: "The chemically-treated wood doors were not charred beyond the depth of the finish veneer. They were not warped and prevented the fire from entering the rooms through the openings where the doors were installed. After the fire they were found to operate freely." See picture at right.

### FIREPROOFED WOOD IN SHIPS

Comfort and luxury demand the liberal use of wood for ship interiors. During the Spanish American War fireproofed wood demonstrated its value during battle conditions. The mining of H. M. S. Hunter, a British Destroyer, during August, 1937, off the Spanish Coast, also gave evidence on the value of fireproofed wood. The report states:—

"The present practice of using fireproofed wood wherever possible received ample justification. Though quantities of oil fuel were thrown about by the explosion, and small fires occurred, in no instance was difficulty experienced in quenching them. Fireproofed wood was found with the paint badly scorched, and but for the fireproofing, serious fires might have occurred."

Fireproofed wood was used extensively on the U. S. Liners Manhattan and Washington.

*Wood Assures Comfort*

Seversky Aircraft Corporation, Farmingdale, N. Y. Receiving and Shipping Building, John H. French Co., New York City, Engineers and Contractors. Roof plank of fireproofed wood.



Fireproofed wood used for ceiling timbers in plating room of The C. O. Jelliff Mfg. Corp., Southport Conn. Approved by fire underwriters.

### RECOMMENDATION

#### TO THE FIRE COUNCIL OF UNDERWRITERS' LABORATORIES:

We recommend promulgation of the following notice to subscribers and the action indicated thereby:

Guide No. 540 IO December 15, 1935—Laboratories' File R2282

Protexol Corporation,  
Kenilworth, N. J.  
Fireproofed Wood

Red oak and maple lumber for flooring or interior finish chemically impregnated so as to be practically nonflammable and noncombustible. Listed—Label Service.

See description of Label Service on guide card.

Authorities having jurisdiction should be consulted before installation.

Tests by:	Report by:	Reviewed by:
J. B. Finnegan A. J. Steiner C. A. Tibbals M. Melnick	<i>A. J. Steiner</i> Assistant Engineer Protection Department	<i>Augustus J. ...</i> Protection Engineer

The foregoing Recommendation has been accepted.

UNDERWRITERS' LABORATORIES

*Charles R. Welton*  
Secretary



Fireproofed wood doors from elevator corridor, 49th Floor, General Electric Building, New York City after fire July 23, 1935. Pruitt & Brown, Architects

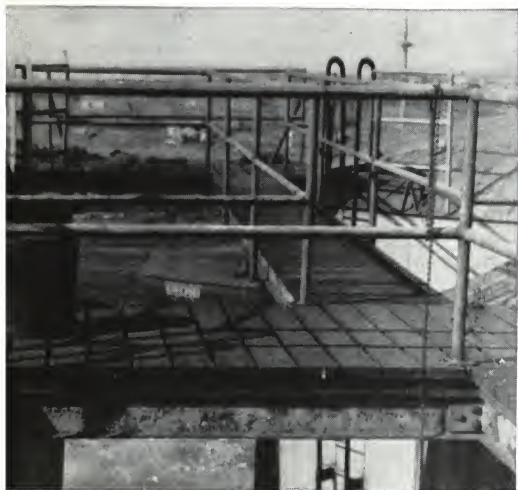




*Above:* Conveyor bridge with fireproofed wood decking at the plant of The Proctor & Gamble Company, Port Ivory, Staten Island. H. K. Ferguson Company of New York City, Engineers and Contractors.



*Left:* Mezzanine floor of fireproofed wood in the Long Island City warehouse of the Crane Company. Gabler-Lang Co., Inc. Engineers and Builders. Approved by fire underwriters.



*Left:* Catwalks and runways of fireproofed wood adjacent to tanks in the alcohol plant of the Publicker Commercial Alcohol Co., Philadelphia, Pa.



*Below:* Footbridge with fireproofed decking on Pier 25, North River, of Eastern Steamship Lines Inc., New York City. Robbins-Ripley Co. Engineers.

## WHAT FIREPROOFED WOOD IS

Fireproofed wood is chemically impregnated wood rendered permanently incapable of supporting combustion. When heat is applied to fireproofed wood, it begins to decompose the injected chemicals into non-poisonous gases which are not only non-combustible but which serve to prevent the oxygen of the air from gaining access to the wood which is being heated. Hence combustion is inhibited. As the application of heat continues a series of endothermic reactions takes place. Checking, charring and slow destruction continue without contributing any fuel value, i.e., no increment in temperature occurs. The surface of the wood manifests only a slight glow, and that portion of the wood bordering on the surface, that is directly exposed to the flame, depending upon its intensity, likewise checks and chars. The gradual disintegration of the wood results by virtue of dry distillation without bursting into flame or spreading blaze. The wood is reduced to a clinker-like charred condition and not to an ordinary ash. Effective fireproofing compounds increase the yield of charcoal by slow dehydration of the wood substances. The principal effects of fireproofing treatments are to retard the normal increase in temperatures under fire conditions, to decrease the rate of flame spread and ignition of the wood, to lessen the rate of flame penetration or destruction of wood in contact with fire, and to extinguish fires more easily.

## HOW WOOD IS FIREPROOFED

The process of impregnation is essentially the same as that followed in other systems of wood preservation. The wood is treated in a sealed cylinder in which the chemical solution is forced into the wood under pressure. In general, this is done in accordance with the standardized procedure of the American Wood Preservers Association Specification 35c and 38a.

## WHAT WOODS CAN BE PROCESSED

While some species of wood offer more resistance to impregnation than others, no difficulty has been experienced in satisfactorily treating dense woods such as walnut, maple and white oak. The color and appearance of the wood is not altered.

## MEASURING FIRE RESISTANCE

The yardstick for fireproofed wood is one of performance in assembly or laboratory tests. The tests required by the American Society for Testing Materials in Specification C 19-33 and C 132-37 T as well as the tests required by the New York Building Department clearly indicate the fitness of the material to pass as fireproofed. Impregnation treatments may be complete saturations as in the case of interior trim or only partial as in the case of structural timber which can be framed to its ultimate dimensions before treatment.



## FIREPROOFING IS LASTING

The permanency of the fireproofing is vouched for by no less an authority than the Underwriters Laboratories of Chicago, who, after exhaustive tests over a period of years, approved Protexol's fireproofed wood in their Report R2282. The fire record of New York City's high buildings since 1899 amply attests the permanence of the fireproofing. Details on request.

## THE CHEMICALS ARE NOT CORROSIVE

The question of corrosiveness of the chemicals was covered by the report of the Underwriters Laboratories. The U. S. Forest Products Laboratory reported on metal fastenings in fireproofed wood removed from the Belmont Hotel, New York, when this was dismantled after a service of 26 years. "The brass screws and hinges were only slightly tarnished and the iron nails for holding in the molding were mostly bright with only a few small spotty rust places on them; no portion of these metal fastenings showed any excessive corrosion."

## FUMES ARE NOT POISONOUS

The products of combustion (fumes) were sampled and tested by the Underwriters Laboratories who reported that "the treated material under fire attack emits no injurious fumes traceable to the chemicals with which the wood is impregnated."

## THE FIREPROOFING CHEMICALS ARE STAPLE

In the 1938 Proceedings of the American Wood Preservers Association, on page 323, is reproduced a summary of tests on the fire resistance of ten different treatments carried out by the California Division of Highways at Sacramento, Cal. The report states: "It may be concluded that the Protexol Process has substantial resistance against leaching."

## HISTORY

Historically, fireproofing of wood began in the fourth century B. C. when Aeneas recommended the use of vinegar. In the files of the British Patent Office the earliest record of a patent appears in 1625. More than 700 patents have been issued in 34 countries. The first commercially successful patent was issued to Max Bachert in 1893. Upon securing the rights to this process the Protexol laboratory improved it until it passed the Underwriters' Laboratories requirements.

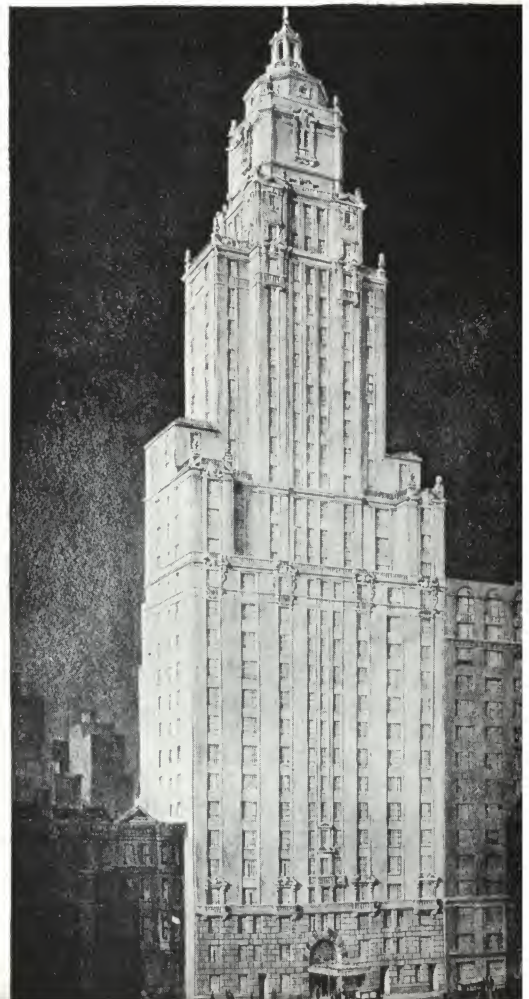
Fireproofed pine was used in this revolving platform in the Dodge-Chrysler Showroom, Chrysler Building, New York, N. Y.



Fireproofed framing was used for the Old South Tower, an old landmark in Copley Square, Boston, Mass. Allen, Collens & Willis, Architects. Turner Construction Co., Builders.

*Fireproofed Wood is Non-Combustible*

Oliver Cromwell Hotel, West 72nd St., New York City. Emery Roth, Arch. Fireproofed flooring and trim throughout.







Board of Directors Room, Seagram Distillers Corporation, Chrysler Building, New York City. All wood fireproofed. Morris Lapidus, Architect.



Executive office of B. Altman & Co. in the Empire State Building. All paneling fireproofed wood.

*Wood Gives Distinction*

Nurses Home, Hartford Retreat, Hartford, Conn. Fireproofed furring strips used throughout. A. F. Peaslee, Inc., Hartford, Conn., Builders.



## COST OF FIREPROOFING

In a general way, it may be estimated that the cost of fireproofing wood is about equal to that of the lumber in its untreated state.

In the itemized list of expenditures on a school building costing \$315,000, the percentage of increased cost due to the use of fireproofed wood as against untreated wood was 2.5%, while in the case of two large apartment houses the percentages of increased costs were 2.39 and 2.83% respectively. For a two-story frame house with nine rooms, having a total floor space of about 1,900 square feet, the cost of fireproofing the framing timbers, flooring, interior trim and doors amounted to \$485.00. For a six room stucco-finished house, 28 by 36 feet, the cost for fireproofing the framing and sheathing, flooring, sub-flooring, window frame and sash, interior trim and doors amounted to \$391.75. For a frame house in Washington, D. C., the cost of fireproofing the wood was 33 cents per cubic foot.

In the case of a powder house, having an estimated value of \$3,600.00, the charge for fireproofing the wood was \$540.00, or about 15% of the cost of the building. The building, its equipment and accessories were valued at \$19,600.00; thus, the percentage of increase in cost due to the use of fireproofed wood was only 2.75%.

To secure protection against flying brands and sparks an aircraft corporation used fireproofed roof planking on its Receiving and Shipping Building at an additional cost of 6c per square foot of wood surface or about 2% of the cost of the building.

A power company wishing to protect a line of 886 poles against grass fires by sheathing the bases of the poles six feet high with one inch strips of fireproofed wood estimated the cost for this work at \$2,000; this was calculated to give the poles protection against fire for a minimum of five years. The cost to clear the grass away from the base of each pole twice a year during the dry grass season was estimated at around \$1,200 per annum.

On a low-cost type of structure, as, for example, scaffolding, the initial cost of fireproofing may be 50% of the lumber cost, but in this particular instance, the lumber has a salvage value, for it can be used over and over again and in each case it will save the contractor materially (usually 20%) in the cost of fire insurance.

Fireproofed pine lobby at the Einhorn Memorial Building, Lenox Hill Hospital, New York. Insures sound absorption. York & Sawyer, Architects.





According to reliable British sources the use of fireproofed wood on warships increased the cost by only .1%, while on a modern passenger ship, the cost is increased by only 1%. This added expense is in part compensated for by the reduced insurance rates.

# SMOKE TIGHTNESS AND HEAT TRANSMISSION OF DOORS

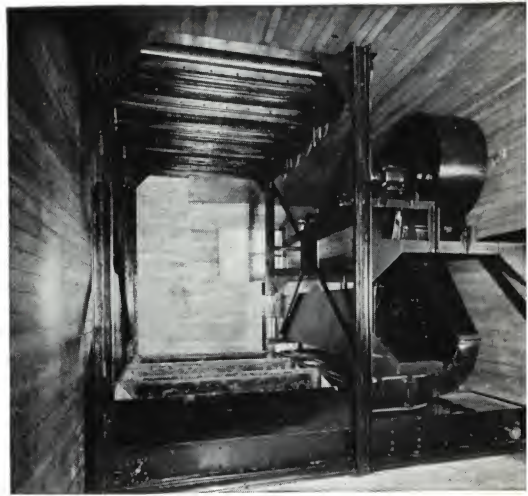
(Extracted from Hearings on Safety at Sea before U. S. Senate  
Commerce Committee, May 19, 1937)

Standard fire tests on 1¾" doors. Measurements for decreased visibility or smoke density taken at a five-foot level two feet from the door in an eight-foot ventilated vestibule equipped with photo-electric means. Vestibule temperature taken at same height above floor, one foot in front of door under test.

	Time in Min.	Wood Fire- proofed	Asbestos Protected Wood	Kala- meine	Asbes- to Steel	Hollow Metal
Decreased Visibility in Per- centage	5		92	11	21	52
	10	10	100	39	42	90
	15	16	100	89	67	90
	20	8	100	89	92	62
	25	10	100	89	94	43
	30	8	100	89	96	39
	35	21	98	94	100	28
	40	16	94	94	92	59
	45	16	68	94		62
	50	16	47	94		62
	55	16		100		14
	60	10		100		14
Transmitted Temperature Degrees F.	5	82	68	184	153	161
	10	83	70	192	265	397
	15	88	77	222	435	590
	20	92	83	327	663	700
	25	98	96	460	805	722
	30	115	109	610	902	818
	35	128	124	702	970	884
	40	143	141	753	1,005	938
	45	162	177	793	1,048	1,005
	50	180	187	802	1,050	1,058
	55	201	199	810	1,062	1,079
	60	210	213	798	1,080	1,095
Vestibule Temperature Degrees F.	5	80	Not Deter- mined	82	83	82
	15	80		84	104	97
	30	84		104	172	126
	45	90		144	212	201
	60	108		174	241	269
Air Temperature		80	72	76	83	52

The significance of this temperature record is evident when it is realized that at a temperature well under 500° F. almost all flammable materials catch fire spontaneously and that at a temperature well under 250° F. human life cannot exist.

Blockhouse on the Saratoga Battlefield at Saratoga, N. Y. Protexol treated. Photo by courtesy of Director W. G. Howard, Land and Forests, Conservation Department, Albany, N. Y.



Wool Processing unit at the Pacific Mills, Lawrence, Mass. of the Frosted Wool Process Co. Fireproofed fir sheathing on the walls and ceiling. Approved by fire underwriters.



Fireproofed plank walks in pipe spaces of the United Shoe Machinery Company Building, Boston, Mass. Geo. A. Fuller Co., Builders.

Fireproofed wood used for this Motor Drome on the Coney Island Boardwalk.







Above: Norse Grill, Waldorf Astoria Hotel, New York. Flooring, panelling and beamed ceiling of fireproofed wood. Schultze & Weaver, Architects.



Above: Fireproofed wood was used for the stage of the Manhattan Theatre, C.B.S. No. 3, New York, on which Major Bowes conducts his Amateur Hour.



## SELECTING THE PROPER TREATMENT

This calls for a careful consideration of all the factors pertaining to decay, fire hazards and use. Toxic chemicals are employed in all of the Protexol treatments. The chemicals employed in the solutions that are forced into the tissues of the wood remain firmly fixed.

Class A is the so-called Non-combustible or Complete Impregnation treatment (heart and sapwood), which is designed to protect wood against ignition and spread of flame in locations where the greatest fire hazards exist. It meets the requirements of the Underwriters' Laboratories, U. S. Government and New York City Building Department. It increases the weight of one inch lumber between five and six pounds per cubic foot.

Class B, or trade-marked "Pyresote" treatment is designed primarily for structural timbers used in places in which protection against fire, decay and insects is important. This calls for a less intensive impregnation of solutions that combine resistance to decay, insects and ignition. It is the most comprehensive treatment thus far devised and meets the fire resistance requirements of specification C-132-37-T, A. S. T. M. The increased weight based on one inch lumber is approximately three pounds per cubic foot of wood.

Class C, or Slow-Burning Treatment, is recommended for structural timbers for interior use. The penetration of the solutions is as deep as in the Class B treatment. This treatment is recommended especially for wood used for stage construction as well as for roof planking and trusses. For the best results the timbers should be framed and ready for joining in advance of the treatment. It meets American Society for Testing Materials specification C-132-37 T. Weight of the wood per cubic foot is increased from three to four pounds in the case of one inch lumber.

Class D, or Non-Flammable treatment, is a less intensive impregnation designed primarily for shoring, scaffolding and other temporary construction, or for conditions which do not offer great fire hazards. This treatment meets the New York, Philadelphia and Washington Underwriters requirements as well as the A. S. T. M. Specifications C 132-37 T. It adds approximately two pounds per cubic foot of wood to the weight.

Fireproofing is a technical process involving a consideration of the proper amount of chemicals that will remain balanced in a water solution within definite temperature limits and react chemically to form insoluble compounds, when the water is removed from the wood by evaporation. Vacuum and pressure periods must be carried out to secure proper distribution of the chemical solution within the structure of the wood without causing a rupture of the wood or a degrading of the lumber.

*Fireproofed Wood has proven its merit.*

Left: Front view from Harvard Yard, Fogg Art Museum, Harvard University, Cambridge, Mass. Fireproofed wood used for lining.



# SUGGESTED SPECIFICATIONS

## FIREPROOFING FOR INTERIOR TRIM, FLOORING AND FRAMING—CLASS A

All wood for interior trim, doors and flooring shall receive a vacuum pressure fireproofing treatment which will satisfactorily meet the test requirements of the Underwriters Laboratories, Chicago, Ill. or the rules for Inspecting Fireproofed Wood used by the Engineering Laboratory of Columbia University, New York City.

All grounds or nailers not covered on three sides by non-combustible material shall be similarly fireproofed.

It is the intent of these specifications to require a treatment that will insure permanency of the fire retardant chemicals equal to the Class A treatment of the Protexol Corporation, Kenilworth, N. J.

## PRESERVATIVE TREATMENT AGAINST DECAY AND FIRE—CLASS B

The wood after working or framing to its final dimensions, shall receive a vacuum pressure treatment with toxic chemicals equal to the requirements of specifications 35c for yellow pine, or 38a for fir, of the American Wood Preservers Association, which, in addition, shall contain fireproofing chemicals that will insure the chemically treated wood meeting the fire test requirements of Specification C 132-37T of the American Society for Testing Materials.

It is the intent of these specifications to require a treatment that will insure the permanency of both toxic and fire retardant chemicals equal to the Class B treatment of the Protexol Corporation, Kenilworth, N. J.

## FIREPROOFING FOR STRUCTURAL TIMBER—CLASS C

The wood after framing or working to its final dimensions shall receive a vacuum pressure fireproofing treatment which will satisfactorily meet the fire test requirements of Specification C 132-37T of the American Society for Testing Materials.

It is the intent of these specifications to require a treatment which will insure permanency of the fire retardant chemicals equal to the Class C treatment of the Protexol Corporation, Kenilworth, N. J.

## FIREPROOFING FOR SCAFFOLDING, SHORING OR OTHER TEMPORARY CONSTRUCTION—CLASS D

All lumber after being worked or framed to its final dimensions, shall receive a vacuum pressure fireproofing treatment which will insure the lumber meeting the fire test requirements of Specifications C 132-37T of the American Society for Testing Materials.

It is the intent of these specifications to require a treatment that will insure permanency of the fire retardant chemicals equal to the Class D treatment of the Protexol Corporation, Kenilworth, N. J.

## FIREPROOFED WOOD DOORS

Flush doors of 1¾ inch thickness with face veneers of (species of wood) shall be of fireproofed wood capable of meeting the one hour standard assembly fire test as required by Specification C 19-33 of the American Society for Testing Materials.

*Wood Absorbs Noise*

*Right: Stateroom on the United States Liner "Washington" showing fireproofed wall panelling and door used throughout this liner as also on the "Manhattan."*



Above: Ferryboat "Meadville." Fireproofed black gum decking used. Mr. A. G. Trumbull, Ch. Mechanical Engineer, Erie Railroad Co., Mr. J. W. Millard, Consulting Naval Architect and Hermann von Schrenk, Consulting Timber Engineer.



Above: Fireproofed wood was used on New York City ferryboats "Gold Star Mother," "Mary Murray" and "Miss New York" by the United Shipyards of Staten Island, N. Y. Above the "Gold Star Mother."



Above: Fireproofed wood was used for the panels and doors on the tankers "Mobiloil" and "Mobilgas" of the Socony-Vacuum Oil Co.

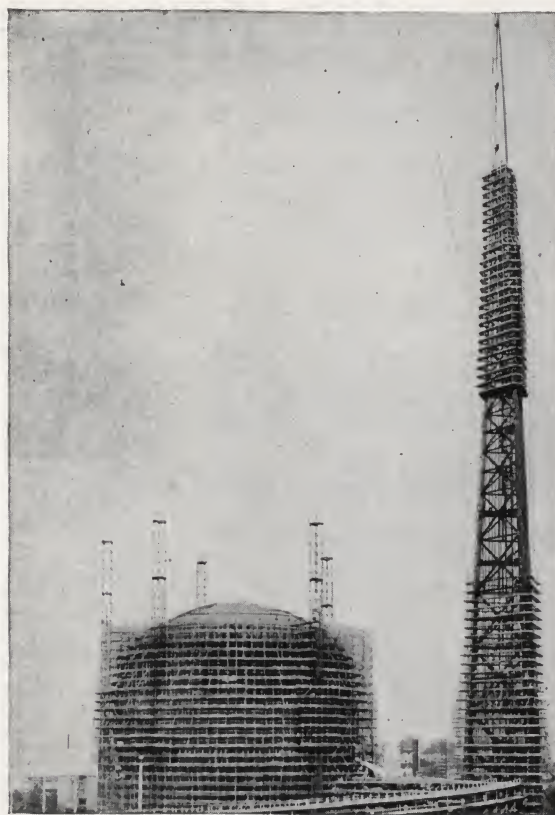




## THE WORLD OF TOMORROW

An important factor in the construction of the New York World's Fair makes fireproofed wood the building material of tomorrow. In the construction of "The Theme Center," the Perisphere and Trylon, fireproofed wood is being used extensively, while all the scaffold planking surrounding these structures is likewise fireproofed. In the case of other buildings at the World's Fair, the Board of Design has made it mandatory to use fireproofed wood for interior scaffolding and fireproofed wood or other non-combustible material for the structural parts of such buildings. On the other hand it has left it optional to use fireproofed wood or other non-combustible material for interior work, unless an approved sprinkler system is installed. These specifications have the support of the fire department and also of fire insurance companies, which grant compensating rates on insurance.

*Below, left: Washington Monument, Washington, D. C. during the repairs made in 1934. Fireproofed scaffold planking used upon specification by the National Park Service, U. S. Department of the Interior.*



*Above: The Theme Center at the World's Fair showing the connecting structure and Helieline. Fireproofed wood throughout.*

Fireproofed scaffold planking was used extensively on the Pennsylvania Railroad Station, the Franklin Memorial in Philadelphia and the National Art Gallery, Washington, D. C., where Fire Underwriters give a reduced rate. Similar credits are offered by New York Fire Underwriters since 1929. The use of fireproofed wood was adopted by the National Fire Protection Association in its Recommended Good Practice Requirements for Building Construction Operations in 1933.

Strength tests on fireproofed scaffold planking were conducted by the Columbia University Engineering Testing Laboratory in 1930 and indicated that it is entirely practicable to secure adequate fire protection without appreciably affecting strength.

*Left: Fireproofed lumber was used for this television tower of the Philco Co. in Philadelphia, Pa., on the recommendation of the Philadelphia Building Department.*



*Right: Fireproofed scaffold planks surrounding the square block of B. Altman & Co., Fifth Ave. and 34th St., New York City. Chesebro Whitman Co. Scaffold Contractors.*





## DRYING

After the wood has been treated with the fireproofing solution it must be dried to a condition suitable for use. If it is to be used for structural purposes, air drying will be quite satisfactory, but, if it is required for interior woodwork or trim, it must be kiln dried.

## MACHINING, GLUING AND FINISHING

For machining fireproofed wood the use of tungsten carbide or alloy tools is recommended, and for the best results the wood should be moved through the machines at high speed. Both hide and casein glues have proven very satisfactory on fireproofed wood. It has been claimed that the new cold mixed resinous glues and the phenolic resin glues employed in the hot press processes are giving still better results. Finishing fireproofed wood presents no great difficulties; the fire resisting chemicals forced into the tissues of the wood serve as a filler. Shellac acts as a sealer and should be used whenever oil paints are to be applied. Water stains should not be used. Varnish, lacquer or wax may be applied to treated wood in a manner similar to that of untreated wood. Any of the treated woods can be finished in their natural shades of colors.

## TREATMENTS AGAINST DECAY AND TERMITES

Zinc chloride treatment (Burnettizing) is a vacuum-pressure process of impregnating wood with a solution containing from one-half to one pound of dry salt per cubic foot of wood. This is a standardized treatment of the American Wood Preservers Association, American Railway Engineering Association and master specification of the Federal Specification Board.

Chromated zinc chloride treatment is in all essential respects similar to the preceding one, but it calls for three-fourths of a pound of dry salt per cubic foot of wood. It is claimed by its proponents to be more toxic and less soluble than zinc chloride.

Pyresote, known as the Protexol Class B treatment, is applied under pressure as in the preceding, but there are added to the solution certain decay and fire-retardant chemicals (Zinc chloride, Bichromate and Ammonium Salts) which insure a net retention of two pounds of dry salt per cubic foot of wood in the timber. The salts are less soluble and less corrosive than any other preservative salt combination.

Fluor-phenol (Trade-marked Protexide) treatment calls for a combination of sodium fluoride and dinitrophenol with an anti-corrosive chemical, usually bi-chromate or borax, and sodium arsenate is sometimes added. These combinations are frequently called Wolman salts, though originated by Malenkovic. Those sponsoring these treatments recommend a net retention of from one-fourth to three-tenths pound of dry salt per cubic foot of wood.



Above: Doors fireproofed for compartments for oil switches in power house of the Public Service Electric & Gas Company, Newark, N. J.



Above: Board Room, Starrett Corporation, 26th floor, Empire State Building, Shreve, Lamb & Harmon, Architects. Fireproofed wood throughout.



Left: Protexol treated lumber was used for this Cupola Bell for the U. S. Post Office, Poughkeepsie, N. Y. Eric Kebbon, Architect.

Right: Fireproofed wood platform for the storage of models, samples and templates used by the Inspection Department of the City Auto Stamping Co., Toledo, Ohio.







The Colonial Village at Clairton, Pa., pictured above, consisting of 600 houses, is completely insulated with Ferro-Therm Metal Insulation. Gilbert Varker, Inc., Engineers responsible for the use of particular materials in this mammoth project delved deeply into the merits of all types of insulation. Ferro-Therm Metal Insulation fulfilled all of the requirements for perfect comfort and economy.

## A FEW REPRESENTATIVE RESIDENCES INSULATED WITH FERRO-THERM



## SOME ARCHITECTS

Randolph H. Almiroty  
Beers and Farley  
Reuben H. Bowden  
Geo. P. Butler, Jr.  
Edward B. Caldwell

Henry T. Child  
G. J. Couchois  
Matthew W. Del Gaudio  
Dodge and Morrison  
H. I. Feldman

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Gillies, Campbell, Builders  
New York World's Fair, 1939, Inc.  
Skinner, Cook & Babcock, Inc., Builders  
Kuhn, Smith & Harris, Inc., Builders  
O'Brien & Kinkel, Builders

Rest  
The  
The  
The  
The

From the collection of:  
Robert Vail Cole Jr, AIA  
1962 – 2011





## SERVICES...

Complete chemical and engineering laboratories. Full size gas fired furnace for testing door assemblies, sash or partitions to A.S.A. and A.S.T.M. standards available for private or official tests.

### Treatments Are Certified

Certified statements as to the treatments applied to wood as well as the tests made at the Protexol Laboratory will be supplied upon request. Inspection of both treatments and tests by purchasers is respectfully invited.

The continuous and never ending protection is represented by the cross section of a log. In practice the circle is used as the face of a clock and a line is branded across the circle to show the month during which the treatment was given. Thus, three o'clock indicates that the treatment was given during March. This makes it convenient at all times to check back to the retort record chart covering the particular treatment.

## PROTEXOL CORPORATION

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37 MARKET ST., KENILWORTH, N. J.

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PROTEXOL PRIDEMARK—A Burned-in Brand Recognized by Underwriters